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Update

A newsletter published by the Payment Cards Center, providing meaningful insights into developments in consumer credit and payments

From the Director

Peter Burns, Vice President & Director

Summer 2008

Welcome to this edition of *Update*, a periodic publication of the Payment Cards Center highlighting recent activities. Also available on our website, *Update* complements the more complete content at www.philadelphiafed.org/payment-cards-center/.

The area of consumer credit and payments continues to be characterized by rapid and dynamic change. The recently released Federal Reserve Payments Study confirmed the continued migration to electronics, finding that two-thirds of all noncash payments in 2007 were made with payment cards and other electronic means. Spurring the pace of transformation are innovations in payment technologies, which now include the use of mobile phone devices. At the same time, the very structure of the industry is changing as the previous bank-owned network associations convert to public ownership and the merchant community becomes more organized and involved in related policy debates. Reflecting both the desire to improve underwriting practices and to safely expand portfolios, a number of credit card issuers are beginning to explore the use of alternative data sources to complement tra-

ditional risk metrics and better evaluate “thin-file” applicants. Again, this period of rapid innovation and change is reflected in the rise of consumer protection legislation and regulation to the forefront of policy debate.

In this issue of *Update* we highlight four papers written by two of the center’s industry specialists that touch on key dimensions of the issues just noted. These papers, written by Ann Kjos and Julia Cheney, examine the structure and changing dynamics in the merchant-acquiring business, discuss how research on consumer financial behaviors influenced and informed selected aspects of the current proposed changes to Regulation Z disclosure requirements, examine consumer adoption of mobile banking and payments, and outline emerging developments in the use of alternative data in credit scoring.

In this issue we also highlight several examples of collaboration and outreach as important drivers of the center’s agenda. In addition to the analytical efforts of our industry specialists, the Payment Cards Center has a strong commitment to primary research and works closely with colleagues in the Bank’s Research Department

Mission Statement

The mission of the Payment Cards Center is to provide meaningful insights into developments in consumer credit and payments that are of interest not only to the Federal Reserve but also to the industry, other businesses, academia, policymakers, and the public at large. The center carries out its mission through an agenda of research and analysis as well as forums and conferences that encourage dialogue incorporating industry, academic, and public-sector perspectives.

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and in academia. As an example of this collaboration, later in this issue we highlight papers presented as part of our fourth bi-annual academic conference co-sponsored with the Bank's Research Department. In another collaborative effort, the center recently hosted a major conference on payment card fraud in conjunction with the Electronic Funds Transfer Association. A brief overview of this event is included in this issue, and a full summary document will soon be available on our website.

Finally, in this issue we also describe and acknowledge the important contributions made by our panel of industry ad-

sors in helping to inform the center's agenda. These and other relationships with the varied constituents in the consumer payments arena are critical elements in achieving our goal of helping to inform policy on important issues in consumer credit and payments.

As always, I invite your thoughts, comments, and suggestions as to how we might improve the effectiveness of our efforts. ■



The Merchant-Acquiring Side of the Payment Card Industry: Structure, Operations, and Challenges

The center hosted a workshop on the merchant-acquiring side of the payment cards industry led by Marc Abbey, managing partner at First Annapolis Consulting. The workshop was organized to provide professionals from various areas within the Bank with a better understanding of this generally less familiar side of the industry. A subsequent analysis written by one of the center's industry specialists, Ann Kjos,

"The Merchant-Acquiring Side of the Payment Card Industry: Structure, Operations, and Challenges,"* draws from the workshop discussion and outlines factors that have affected the evolution of the industry. Her paper also describes Abbey's view of

* Available on the center's website at: <http://www.philadelphiafed.org/payment-cards-center/publications/discussion-papers/2007/D2007OctoberMerchantAcquiring.pdf>.

current industry dynamics and provides commentary on several emerging issues that will likely have a significant impact on the merchant-acquiring function.

When credit cards first entered the market, banks typically functioned as both issuers and acquirers; that is, they both issued the cards to their customers and acquired the transactions from local merchant clients. Beginning in the 1980s, the issuer/acquirer bank structure began to evolve into two generally separate and specialized business lines. As many commercial banks exited the business, they were often replaced by nonbank firms, especially on the data-processing-intensive acquiring side of the business. As in other areas of payments innovation, technology had an important role to play in the evolution of the acquiring business. Chief among these was the introduction of electronic terminals at the point-of-sale, an innovation that eliminated the need to process paper receipts. The transition from paper to electronics decreased the cost of processing transactions just as the number of transactions was increasing and allowed acquirers to service a broad segment of merchant customers without regard to geographic location. Soon, acquiring became a scale-driven business, with acquirers focusing on transaction volume and competing for relationships with large merchants.

Acquirers provide a broad range of services to their merchant customers either directly or via sub-contracting with specialized service providers. These activities in-

clude everything from installing terminals, operating help desk hotlines, to, most important, processing transactions. Payment for many of these services comes from the discount taken on each sales transaction. The largest portion of this merchant discount goes to the card-issuing banks in the form of an interchange fee. A relatively smaller portion of the fee goes to the network, and the remainder accrues to the acquiring bank. Reflecting the scale nature of the acquiring business, competition has driven the profit margins for large volume merchants to relatively low levels, with small to medi-



Ann Kjos

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um-size merchants accounting for most of the acquiring industry's profitability. First Annapolis estimated that small merchants generated 42 percent of the acquiring industry's net revenue but represented less than 10 percent of its sales volume in 2004. The largest merchants, on the other hand, provided 6 percent of the industry's net revenue but 52 percent of its sales volume. As is typical in low margin scale-oriented

Proposed Changes to Regulation Z: Highlighting Behaviors That Affect Credit Costs

Analysts in the Payment Cards Center have been actively following and participating in the public dialogue on the Federal Reserve's efforts to revise credit card disclosure requirements as defined by Regulation Z. In June 2005 the center hosted a forum on the subject that brought together leading scholars, industry executives, and policy experts to consider the role of disclosure practices as part of broader consumer protection regulation.¹

Some two years later, the center hosted a workshop to discuss several of the then-proposed revisions to disclosure requirements and related research by Jeanne Hogarth, program manager in the Consumer Education and Research section of the Board of Governors' Division of Consumer and Community Affairs. Hogarth discussed a recent paper identifying certain behaviors most likely to affect the interest rates consumers may pay for borrowing and related these findings to the Board's proposed changes to Regulation Z.² Center analyst Ann Kjos has summarized Hogarth's talk in a discussion paper, "Proposed Changes to Regulation Z: Highlighting Behaviors That Affect Credit Costs."³ The paper details Hogarth's argument that disclosures

providing easily understood information about critical credit card terms and conditions will lead consumers to make more financially efficient decisions.

Hogarth's research highlighted specific behaviors having significant effects on the interest rate consumers are charged on credit cards. The data used to test these behaviors were based on the Federal Reserve's periodic Survey of Consumer Finances. After testing a number of factors against the interest rate on a consumer's primary credit card, the researchers identified five statistically significant behaviors: paying off credit card balances, paying bills on time, shopping for credit, becoming more financially educated, and decreasing credit use. The intuition gained from this analysis is that the price consumers pay for credit is not only affected by these behaviors but can also be altered by modifying damaging financial practices.

In relating her research findings to the Board's proposed changes to Regulation Z, Hogarth focused on the rules covering two critical sources of information available to credit card users: the initial card solicitation, which gives consumers information about the credit offering, and the periodic billing statement, which updates consumers on the status of their accounts. In her discussion of solicitation documents, Hogarth focused on the proposed disclosures for interest rates and fees and a proposal to provide a

¹ The conference summary "Federal Consumer Protection Regulation: Disclosures and Beyond" can be found on the center's website at: <http://www.philadelphiafed.org/payment-cards-center/events/conferences/2005/consumerprotectionsymposium-summary.pdf>.

² See Jeanne Hogarth, Amberly Hazebuller, and Britton Lombardi, "Unlocking the Risk-Based Pricing Puzzle: Five Keys to Cutting Credit Card Costs," at: www.consumerinterests.org/files/public/HazebullerLombardiHogarth_UnlockingtheRiskBasedPricingPuzzle.pdf.

³ Available on the center's website at: <http://www.philadelphiafed.org/payment-cards-center/publications/discussion-papers/2008/D2008MarchRegulationZ.pdf>.

reference to an educational website hosted by the Board.

In addition to the research conducted by Hogarth and others, the Board made extensive use of consumer testing to help inform its proposed disclosure revisions. Such testing by the Board revealed, for example, that the way in which many card issuers allocate repayments to various balance types – that is, purchase transactions, balance transfers, cash advances, and so forth – was generally found to be confusing for consumers, prompting one set of revised disclosures. Another area of confusion revealed by consumer testing related to the number of new fee categories, such as set-up and maintenance fees and various penalty fees, now common practice in many subprime card offers. By putting these fees in one easy-to-understand format, the Board’s proposed revisions are designed to help borrowers gain a better understanding of the full cost of the credit offered.

These and other proposed changes reflect and support Hogarth’s research finding that comparison shopping is an important determinant in minimizing the cost of using credit cards. In addition, the Board has also proposed requiring credit card issuers to include a reference on all credit card solicitations to a new informational website hosted by the Federal Reserve, a requirement also supported by Hogarth’s finding on the relevance of financial literacy in affecting the price of credit.

As for the proposed disclosure changes to credit card billing statements, Hogarth focused on four areas: information about late payments, a new notice about the effect of minimum payments, rules about com-

municating changes to account terms, and simplifying descriptions of multiple fee/interest rate categories. In discussing the proposed changes, she gave examples for each of the areas and then related the proposed changes to her earlier research findings. For example, the proposal to more prominently display the payment due date as well as including a specific late payment warning on statements is intended to reinforce positive consumer behavior associated with paying bills on time.

Since the workshop was held, the Board has made a substantive change in its approach to consumer protection regulation. In addition to further refinements to the proposed changes to Regulation Z, the Board recently announced a number of proposed rules that go beyond information

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disclosures and are directed at prescribed practices, including new limitations on the payment allocation practices noted earlier.⁴ A number of the proposals relate to areas where Hogarth’s research and the Board’s consumer testing revealed continued confusion on the part of consumers. ■

⁴ On May 19, 2008, the Federal Reserve (Board), the Office of Thrift Supervision (OTS), and the National Credit Union Administration (NCUA) proposed rules dealing with certain practices involving consumer credit card accounts and overdraft services for deposit accounts. (73 Fed. Reg. 28,904)

Recent Developments in Consumer Credit & Payments



Since its inception in 2000, the Payment Cards Center has enjoyed a strong working relationship with the Bank's Research Department. In September 2007 the two groups co-hosted their fourth bi-annual conference on developments in consumer credit and payments. This event brought together leading researchers from academia and from within the Federal Reserve System to discuss six selected papers. This issue of *Update* provides only a brief synopsis of the papers, but the full documents can be found at: <http://www.philadelphiafed.org/payment-cards-center/events/>.

Liquidity Constraints and Imperfect Information in Subprime Lending

Jonathan Levin, of Stanford University, presented his paper on a study (with William Adams and Liran Einav) showing the economic significance of liquidity constraints, using the example of the market for subprime auto loans. In the study, Levin and his co-authors examined a sample of loan applications at a large subprime auto lender between June 2001 and December 2004. They also examined the details of the loan contracts for the applications that were accepted and the repayment history on all loans through April 2006.

Levin argued that a car-buying customer who is not liquidity constrained would care only about the present value of total loan payments. In other words, a dollar spent today to cover the down payment

should have the same effect on the borrower's purchasing decision as an appropriately discounted dollar spent tomorrow to repay the loan. On the contrary, Levin and co-authors found that a \$100 increase in the minimum down payment had the same effect on the probability of purchase as a \$900 increase in the car price, evidence that purchase decisions were strongly affected by the customer's ability to come up with the initial cash.

The authors also attempted to uncover the underlying sources of liquidity constraints, especially those associated with the effects of adverse selection and moral hazard. The authors defined adverse selection as the tendency for borrowers who have a higher risk of default to take out larger loans, and they defined moral hazard as the tendency for borrowers with larger loans to default more often. Their results provided evidence of both effects, with moral hazard having the stronger impact.

Information Technology and the Rise of Household Bankruptcy

The second paper was presented by Borghan Narajabad from Rice University, who discussed the results of his work on the underlying causes of the increase in consumer bankruptcies in the mid-1990s. Narajabad argued that previous research had failed to adequately explain why the rise in bankruptcies coincided with other developments in consumer credit markets,

including a significant rise in credit card debt and usage as well as an increase in the variation of credit terms offered to customers. For example, the often cited explanation of a decline in “stigma” as the cause of the increase in bankruptcy filings should also result in lenders’ offering less credit to consumers, when, in fact, lenders offered more.

Narajabad developed a theoretical model in which he simultaneously accounted for the increased willingness of lenders to offer unsecured credit and the willingness of consumers to borrow more. He explained that the increased credit supply was a result of an improvement in lenders’ screening technology that permitted them to better

distinguish between high-risk and low-risk borrowers. If lenders are more certain that a consumer is low risk, they are more likely to offer him or her a higher credit limit. At the same time, however, a rise in the consumer’s debt to income ratio increases the consumer’s vulnerability to shocks that might eventually lead to default. Thus, better screening is consistent with a rise in borrowing and default rates among borrowers initially regarded as low risk.

On the other hand, by itself, an improvement in screening technology would cause lenders to reduce the credit available to high-risk borrowers, a pattern inconsistent with the observed data for the 1990s. Nara-



Presenters: Borghan Narajabad, Rice University; Barry Scholnick, University of Alberta; Jonathan Levin, Stanford University; James Vickery, Federal Reserve Bank of New York; Ronel Elul, Federal Reserve Bank of Philadelphia; and John Driscoll, Federal Reserve Board.

jabad argues that this is due to an offsetting effect: the introduction of risk-based pricing by lenders. In other words, if lenders are able to charge high-risk consumers for the additional credit risk, and those consumers are willing to pay those rates to obtain credit, it is possible for the amount of credit offered to these consumers to increase rather than decrease. Again, the resulting higher debt to income ratio would also imply an increase in the default rate. Relatively speaking, the increase in borrowing among high-risk borrowers would not be as great as for low-risk borrowers because the screening effect works in the opposite direction for these two groups. At the same time, the application of risk-based pricing implies an increased difference in interest rates paid by low- and high-risk consumers. Thus, an important additional implication of Narajabad's model is that we should observe increasing differences in the quantity and price of credit offered to high- and low-risk consumers.

Narajabad uses data on consumers' use of credit cards, pricing, borrowing, debt to income, and default behavior from the Survey of Consumer Finances in 1992 and 1998 to demonstrate that each of these patterns exists in the data. He also performs a numerical analysis, in which he alters the quality of lenders' screening technology and their pricing strategy to show that such changes can account for at least a third of the rise in defaults during this period.

Who Makes Credit Card Mistakes?

Barry Scholnick, of the University of

Alberta, discussed the results of his study (with Nadia Massoud and Anthony Saunders) of financial mistakes made by credit card holders. They examined the prevalence of certain types of mistakes, as well as the

[These authors] found that a significant fraction of the transactions could have been avoided by using available bank balances and thus were deemed mistakes.

types of customers who made these mistakes. The main question motivating their study was whether mistakes were made predominantly by wealthy customers, who might make mistakes because the impact on their total wealth is trivial, or by poor and less educated customers, who might make mistakes because of a lack of financial sophistication. To answer this question, the authors developed a unique data set of Canadian consumers based on proprietary bank data combined with highly disaggregated data on demographic composition and residential real estate for the neighborhoods where these consumers live.

The authors defined four types of "mistakes" that resulted in the credit card holders' paying penalty fees despite the fact that they had adequate bank balances to cover the transactions. Interestingly, they found that a significant fraction of the transactions could have been avoided by using available bank balances and thus were deemed mistakes.

Turning to the question of who makes such mistakes, the authors found that less

wealthy cardholders were more likely to make mistakes. Scholnick argued that these results were not consistent with the view that mistakes were mainly committed by wealthier customers, rationally allocating their attention to more significant financial decisions.

The Age of Reason: Financial Decisions Over the Life Cycle

The fourth paper, presented by John Driscoll, of the Federal Reserve Board, was based on research (with Sumit Agarwal, Xavier Gabaix, and David Laibson) that looked at the pattern of financial decision-making over an individual's lifetime. Driscoll and his co-authors used proprietary data sets from a national financial in-

and paying fewer fees compared with both younger and older adults. These results are consistent with the authors' hypothesis that financial sophistication follows a U-shaped pattern whereby the quality of financial decisions rises and then falls with age. According to Driscoll and his co-authors, a model in which an individual's analytic capabilities decline roughly linearly from age 20 onward, while experience with financial matters increases throughout the individual's life but at a decreasing rate over time can explain this age-of-reason effect. Specifically, improvements in financial performance occur until (roughly) age 53, after which the decline in cognitive ability dominates.

Bankruptcy: Is It Enough to Forgive or Must We Also Forget?

Many countries have laws that prevent credit bureaus from disseminating old information; for example, in the United States the Fair Credit Reporting Act of 1970 (FCRA) generally prohibits bureaus from reporting bankruptcies after 10 years. Yet using such informa-

tion would be profitable for lenders. Ronel Elul, of the Federal Reserve Bank of Philadelphia, discussed his research (with Piero Gottardi, of the University of Venice) that examined why such laws might nevertheless be desirable from a social point of view.

The basic tradeoff in their model is as follows. When a borrower anticipates that his default might be "forgotten," this makes his incentives worse because it reduces the punishment for failing to repay. On the other hand, once a borrower has actually

The sophistication of financial decisions varies by age, with middle-aged adults borrowing at lower interest rates and paying fewer fees compared with both younger and older adults.

stitution to consider financial decisions in 10 separate contexts, including a number of decisions involving home equity loans, auto loans, and credit cards. In addition to information on the financial transactions themselves, the data sets include substantial demographic information on the decision-making customers.

Based on the empirical findings, the authors found that the sophistication of financial decisions varies by age, with middle-aged adults borrowing at lower interest rates



defaulted, his incentives will generally improve if the default were erased. The reason is that with a default on his record, he will already have been identified as a risky borrower by lenders, and so whether or not he repays in the future will not have much effect on his reputation. The authors derive conditions under which the second effect is stronger than the first and, thus, that society would benefit from restrictions on the use of old information. They then use their model to examine the policy debate surrounding the adoption of these laws and to understand the effects of cross-country differences in these rules.

Interest Rates and Consumer Choice in the Residential Mortgage Market

The last presenter at the conference, James Vickery, of the Federal Reserve Bank of New York, outlined the results of his research concerning the elasticity of substitution between fixed-rate mortgages (FRMs) and adjustable-rate mortgages (ARMs). Roughly speaking, the elasticity of substitution measured here is the difference in the market share of conforming and nonconforming FRMs divided by the difference in the rates between FRMs and ARMs just above and below the conforming loan limit. The Office of Federal Housing Enterprise Oversight (OFHEO) sets the conforming loan limit – the maximum loan amount – that Fannie Mae and Freddie Mac can purchase.

The regulatory cutoff for conforming mortgages – the maximum size for loans

that can be purchased and insured by the government-sponsored enterprises (GSEs) – creates a discontinuity at the conforming loan limit. Vickery argued that the supply of fixed-rate mortgages falls discontinu-

The supply of fixed-rate mortgages falls discontinuously at the conforming loan limit because loans cannot be as easily securitized without a guarantee from the GSEs.

ously at the conforming loan limit because loans cannot be as easily securitized without a guarantee from the GSEs. The greater difficulty of securitizing loans affects the supply of FRMs more than the supply of ARMs because FRMs subject the lender to interest-rate risk if they are kept on the lender's balance sheet. As long as the relative demand for FRMs and ARMs is affected by their rates, but not by the conforming loan limit per se, the discontinuity permitted Vickery to identify the demand curve for FRMs.

Vickery determined how consumers respond to the price difference between FRMs and ARMs by looking at the demand curve for FRMs against the supply curves for conforming loans and nonconforming loans. Specifically, he found that a 20-basis-point increase in retail FRM interest rates (relative to ARMs) increases the probability that a household will choose an ARM by 17 percentage points. This finding represents an elasticity of substitution close to one, indicating that the demand for FRMs is sensitive to their price in comparison to the price of ARMs. ■

An Examination of **Mobile Banking and Mobile Payments:** **Building Adoption as Experience Goods?**

Although they started out as wireless telephones, today's technologically sophisticated mobile devices (cellular phones or digital assistants) can be used for other purposes, including conducting financial activities such as mobile banking¹ and mobile payments.² Since the use of these devices for this purpose is a relatively new innovation, the future of mobile financial services largely depends on consumers' response. In her paper entitled "An Examination of Mobile Banking and Mobile Payments: Building Adoption as Experience Goods?"³ Julia Cheney uses the economic concepts of "experience goods" and "learning by doing" to gain insight into how consumers' adoption of mobile banking and mobile payments might evolve.

Consumer adoption of mobile cellular phones has increased dramatically: There were more than 2.1 billion subscribers worldwide in 2005, or 34 percent of the world's population. In addition, people around the world are increasingly using these devices for a range of nonvoice ser-

vices, which may include sending short message service (SMS) text messages and accessing the Internet. Applying the theory of experience goods, Cheney argues that consumers' increasing breadth of experience and familiarity with using their mobile devices in nonfinancial situations could naturally extend into using them for financial purposes.

In addition to providing text messaging and Internet access for mobile financial transactions, mobile phones, Cheney notes, can be enabled to conduct contactless "proximity" payments via near field communication (NFC) chips. This technology was originally developed to facilitate proximity or contactless payments with a plastic payment card and is now being tested with mobile phones. However, she points out several barriers to broad adoption of the mobile cellular phone for contactless payments in the United States, including the limited number of phones that currently include NFC chips. This provides consumers with limited opportunities to gain experience with mobile NFC payment capabilities or to build on the experience through learning by doing. Furthermore, the adoption of contactless card payments by merchants and consumers is still relatively limited in the U.S., providing little opportunity for consumers to build experience with this technology. Cheney posits, however, that the conditions in other countries with growing experience with NFC-enabled mobile payments, such as Japan, may lead to more

¹ Mobile banking allows bank customers to check balances, monitor transactions, obtain other account information, transfer funds, locate branches or ATMs, and sometimes even pay bills.

² Payment transactions initiated or confirmed using a person's mobile cellular phone or personal digital assistant are defined as mobile payments.

³ Available on the center's website at: <http://www.philadelphiafed.org/payment-cards-center/publications/discussion-papers/2008/D2008MobileBanking.pdf>.

rapid consumer adoption in these markets. In the U.S., she suggests that growing use of NFC technology in highway and public transit applications may provide the necessary experience factor that could ultimately lead to broader payments adoption.

In her analysis, Cheney notes that there is considerable variation in the global use of mobile phones, familiarity with SMS text messaging, broad band Internet access, and chip-enabled proximity payments – all ingredients of mobile financial service applications.

Globally, half of all handsets are web-enabled, and a quarter of these handsets are being used to access content on the Internet. Also, web-enabled phones are much more common in developed than developing countries, where broad band Internet access is still too costly for most consumers. As she details in her paper, the resulting differences in experiences associated with mobile devices and technologies are likely to affect the paths of consumer adoption of mobile financial services in different parts of the world.

Cheney considers three ad-

ditional factors that will likely affect adoption patterns, including financial inclusion opportunities, data security concerns, and industry coordination issues. Addressing the issue of financial inclusion, she notes that the differences in patterns of mobile financial services adoption are most apparent when examining consumer experiences in developed versus developing countries. Mobile banking may be seen as just another

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service channel complementing existing well-functioning alternatives in countries with more developed banking systems. In developing countries, on the other hand, mobile payments may emerge as the only electronic payment method available to a large segment of the population that operates outside mainstream banking systems. Thus, the adoption of mobile financial services in less-developed nations can potentially be significant in compelling service providers and governments to make financial services more inclusive.

Last, Cheney notes that beyond the experience factors, concerns about data security and coordination challenges faced by providers of financial services and telecommunications are two other factors likely to affect consumer adoption. She suggests that the adoption of the mobile channel as a means to manage bank accounts or to make payments will be affected by the degree to which consumers are concerned about the



Julia Cheney

security of mobile devices. Similarly, to the extent that financial services firms and telecom providers cannot satisfactorily resolve coordination issues around the economics of mobile financial services and their respective regulatory regimes, consumers' adoption of mobile financial services will also be affected.

The application of the theories of experience goods and learning by doing to the mobile financial services market provides a framework for better understanding the likely trajectory of consumer adoption. Specifically, Cheney argues that consumers'

experience with mobile devices, SMS text messaging, online banking, and contactless payments can be seen as foundations for the successful adoption of mobile banking and mobile payments. Also, financial inclusion, data security, and coordination issues present both opportunities for and challenges to adoption. Ultimately, Cheney views the mobile channel as having the potential to become the primary way through which consumers conduct their financial business, particularly in developing countries and among unbanked communities in developed nations. [U](#)



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Note: In September, the Philadelphia Fed will unveil its redesigned website. The redesigned site will feature a new look with updated graphics; better organization of content, resources, and tools; new topic-based ways to find content; and more. Please be aware that some URLs may change as a result of the redesign.

Alternative Data and Its Use in Credit Scoring Thin- and No-File Consumers

Recent economic events remind us that accurately predicting a particular consumer's credit risk can be a difficult task, especially among consumers with little or no credit history. At the same time, consumer lenders know that within the pool of the 35 to 70 million estimated U.S. consumers with "thin" or nonexistent credit files, there are many who represent potentially bankable customers. As a result, a growing interest has developed in determining whether there are other payment behaviors not captured by traditional credit reporting agencies that might lead to profitable underwriting approaches. To gain further insight into this area and better understand the challenges surrounding the use of alternative payments data in credit scoring, the center hosted a workshop with Arjan Schütte, associate director of the Center for Financial Services Innovation (CFSI). Arjan and CFSI have been researching alternative scoring models as part of their broader mission to improve opportunities for access to financial services for low- and moderate-income consumers.¹ Industry Specialist Julia Cheney summarized the findings presented at the workshop in the discussion paper entitled "Alternative Data

and Its Use in Credit Scoring Thin- and No-File Consumers."²

During the workshop, Schütte noted that one of the key challenges in developing the market for alternative data is determining which data are the best predictors of risk. Research to date suggests that insights can be gained by determining if the underlying transaction is "cash-like" or "credit-like." The more credit-like a trans-

The more credit-like a transaction is, the more helpful it should be in determining the likelihood of whether a thin- or no-file consumer will make future payments on traditional credit products.

action is, the more helpful it should be in determining the likelihood of whether a thin- or no-file consumer will make future payments on traditional credit products. The extent to which transaction types are used is also relevant. The more widely used, the more efficiently data analysis standards can be applied across a larger population. Conversely, if coverage is limited, the incremental benefit derived from the data may be less than needed to justify the costs of gathering the data. On the supply side, the

¹ For more information on the Center for Financial Services Innovation, see its website at: www.cfsinnovation.com/about.php.

² Available on the center's website at: <http://www.philadelphiafed.org/payment-cards-center/publications/discussion-papers/2008/D2008FebAlternativeData.pdf>

structure of the particular data-furnishing industry is also an important determinant of the feasibility of using alternative data. If data furnishers are highly concentrated, scale efficiencies are gained, making it more likely that those furnishers' efforts to report this information will be successful. Based on these criteria, Schütte noted that utility and telecom payments represent good examples of credit-like alternative payment transactions that are broadly used by con-

weigh the costs of reporting, the supply of alternative data is expected to expand.

On the demand side, lenders' interest is contingent on a number of factors. First, data sources must be broad and deep, offering redundancy and high hit rates. Second, data delivery systems need to be improved so that they integrate both alternative and traditional data and allow lenders to use existing channels and sources. Third, risk

managers must build trust with new systems by realizing the incremental benefits gained by incorporating alternative data into credit underwriting and other business decision models. In sum, Schütte concluded that

Lender demand will grow as it becomes evident that incorporating alternative data into credit scoring models will allow the profitable expansion of portfolios.

sumers and where the data-furnishing industries are relatively concentrated.

Data furnishers, including utility and telecom companies, are one of three types of organizations on the supply side of the alternative data market. Furnishers supply payment data to repositories that manage the databases storing the data that are ultimately used by the third party in the supply chain, data scoring firms that apply analytics to generate a credit risk score. Schütte noted that the supply side of the market for alternative data is rapidly evolving with many new and established companies contributing data and providing risk analysis that incorporate at least some elements of alternative data in order to improve underwriting decisions. However, he noted that further growth of the market depends largely upon there being a ready and regular supply of data. As the benefits to sharing information with data repositories is determined to out-

lender demand will grow as it becomes evident that incorporating alternative data into credit scoring models will allow the profitable expansion of portfolios.

Incorporating alternative payments data in current credit scoring practices presents additional challenges, including the costs of modifying legacy systems, the costs and complexities of changing IT infrastructures, legal and regulatory hurdles, and the broad economic impact of extending the market for consumer credit. Ultimately, though, the continued evolution of supply and demand for alternative data in the credit information markets will center on the strength of the business case to motivate furnishers of alternative data to voluntarily share payment information with data repositories and whether, then, the data can be used effectively to improve underwriting decisions. ■

Maintaining a Safe Environment for Payment Cards: Examining Evolving Threats Posed by Fraud

On April 23 and 24, 2008, the Payment Cards Center co-hosted a conference with the Electronic Funds Transfer Association (EFTA). Entitled “Maintaining a Safe Environment for Payment Cards: Examining Evolving Threats Posed by Fraud,” the conference was designed to extend the discussion that began at a September 2006 conference, “Information Security, Data Breaches, and Protecting Cardholder Information: Facing Up to the Challenges.”* Over the two days, representatives from industry, government, and academia gathered to discuss payment card fraud from the perspective of issuers, acquirers, networks, and consumers.

Charles I. Plosser, president of the Federal Reserve Bank of Philadelphia, provided welcoming remarks to conference attendees on Thursday morning. Plosser emphasized that staying ahead of fraud threats is imperative to maintaining the public’s confidence in the payments system, a particular concern of the Federal Reserve. While acknowledging that preventing fraud is difficult, he also emphasized the need for collaboration, since no single participant in the payment system can provide comprehensive solutions. Therefore, he urged conference

participants to consider the perspectives and roles to be played by issuers, acquirers, networks, and consumers.

The conference promoted a lively discussion among participants and panelists. While all agreed that there is no panacea for fraud, the participants engaged in interesting discussions of alternative approaches to combating payment fraud, with a somewhat surprising emphasis on the use of chip and PIN authentication techniques.

The full program agenda, including the list of speakers and panelists, is available on the center’s website. A complete summary of the conference will be posted on the center’s website in the coming months. ■

*A summary is available on the center’s website at: <http://www.philadelphiafed.org/payment-cards-center/events/conferences/2007/C2006SeptInfoSecuritySummary.pdf>



Shown above are the panelists for the conference’s consumer perspective panel (left to right): Bob Shiflet, Bank of America; Betsy Broder, Federal Trade Commission; and Tony Spinelli, Equifax. Panel moderator Ed Wargo, Javelin Strategy & Research, is shown at right.

Payment Cards Center Convenes Industry Advisors

From its inception nearly eight years ago, the Payment Cards Center has followed a policy of reaching out to the broad set of stakeholders in the consumer payments and credit arena. We greatly value the interactive dialogue and resulting input as we work to build a research and program agenda that reflects the range of relevant perspectives. This operating principle is central to the center's mission "to provide meaningful insights into developments in the payment cards industry that are relevant not only to the Federal Reserve, but also to

the industry, other businesses, academia, policymakers, and the public at large."

Among these constituencies, industry participants provide special value in ensuring that the center's activities are grounded in market realities. In addition to regular dialogue with industry experts at our conferences and workshops, the center also convenes semi-annual meetings with a group of industry advisors. In addition to seeking advice and counsel on our ongoing agenda, we use a good portion of these meetings

to generate an informal discussion of what our advisors judge to be emerging issues that might affect the industry and the broader consumer finance sector of the banking system. The insights gained from these discussions provide invaluable input as we consider directions for future initiatives.

Importantly, our advisors represent a range of industry perspectives, and they bring a broad base of business experience and expertise to the table. ■



Seated (left to right): Alex Mogielnicki, JPMorgan Chase; Stan Paur, PULSE-EFT Association; middle row (left to right): Peter Burns, Payment Cards Center; Peter Schnall, Capital One; Bob Carr, Heartland Payment Systems; Jack Williams, eCommLink; John Carey, Citi Cards; back row (left to right): Gary Palmer, Fidelity National Information Systems; Clint Walker, Barclaycard U.S.; Ed Matthews, Bank of America; Paul Weston, ICBA Bancard-TCM Bank; and Ron Congemi, Electronic Funds Transfer Association

Recent Publications

The Payment Cards Center's commitment to industry analysis and research is fulfilled through its support of consumer payments- and payment cards-related papers written by center staff, visiting scholars, researchers affiliated with the center, and economists in the Bank's Research Department. These papers can take several forms: discussion papers, conference summaries, working papers, or *Business Review* articles. Discussion papers and conference summaries are generally written by center staff and are aimed at industry and policy-oriented audiences. Working papers are intended for the professional researcher and are written by center visiting scholars and economists in the Bank's Research Department. The *Business Review* includes less technical articles written by economists in the Bank's Research Department. Recently published papers are available in PDF format on the center's website. A chronological listing of papers posted to the website in 2008 follows.

2008

- 08-01 Alternative Data and Its Use in Credit Scoring Thin- and No-File Consumers
- 08-02 Proposed Changes to Regulation Z: Highlighting Behaviors That Affect Credit Cards
- 08-03 Recent Developments in Consumer Credit and Payments
- 08-04 The Economic Logic of a Fresh Start
- 08-05 Business Method Patents and U.S. Financial Services
- 08-06 An Examination of Mobile Banking and Mobile Payments: Building Adoption as Experience Goods?
- 08-07 The Laws, Regulations, Guidelines, and Industry Practices That Protect Consumers Who Use Gift Cards



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Payment Cards Center Newsletter

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The Payment Cards Center was established to serve as a source of knowledge and expertise on consumer credit and payments; this includes the study of credit cards, debit cards, prepaid cards, smart cards, and similar payment vehicles. Consumers' and businesses' evolving use of electronic payments to effect transactions in the economy has potential implications for the structure of the financial system, for the way that monetary policy affects the economy, and for the efficiency of the payments system.

